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# A Sustainable Army

## US Army Installation Sustainability Training

***Aug 04***



17 March 2005

# Introductions

- **Name, organization, job**
- **What does sustainability mean?**

# Objectives

1. *There's a challenge – military installations are increasingly impacted by resource, community and land use issues*
2. *There's a solution – "sustainability" is a framework used by the business community to balance economy, well-being, and environment*
3. *There's a process – for integrating sustainability into installation planning*
4. *There are results*

# Part 1: The Challenge

# Basic economics

- **Costs increase when supply falls and demand rises**

# Rising Demand

- **Demand for resources is rising for three reasons:**
  - ✓**Population is rising**
  - ✓**Quality of life is rising worldwide**
  - ✓ **Wasteful and inefficient technology**

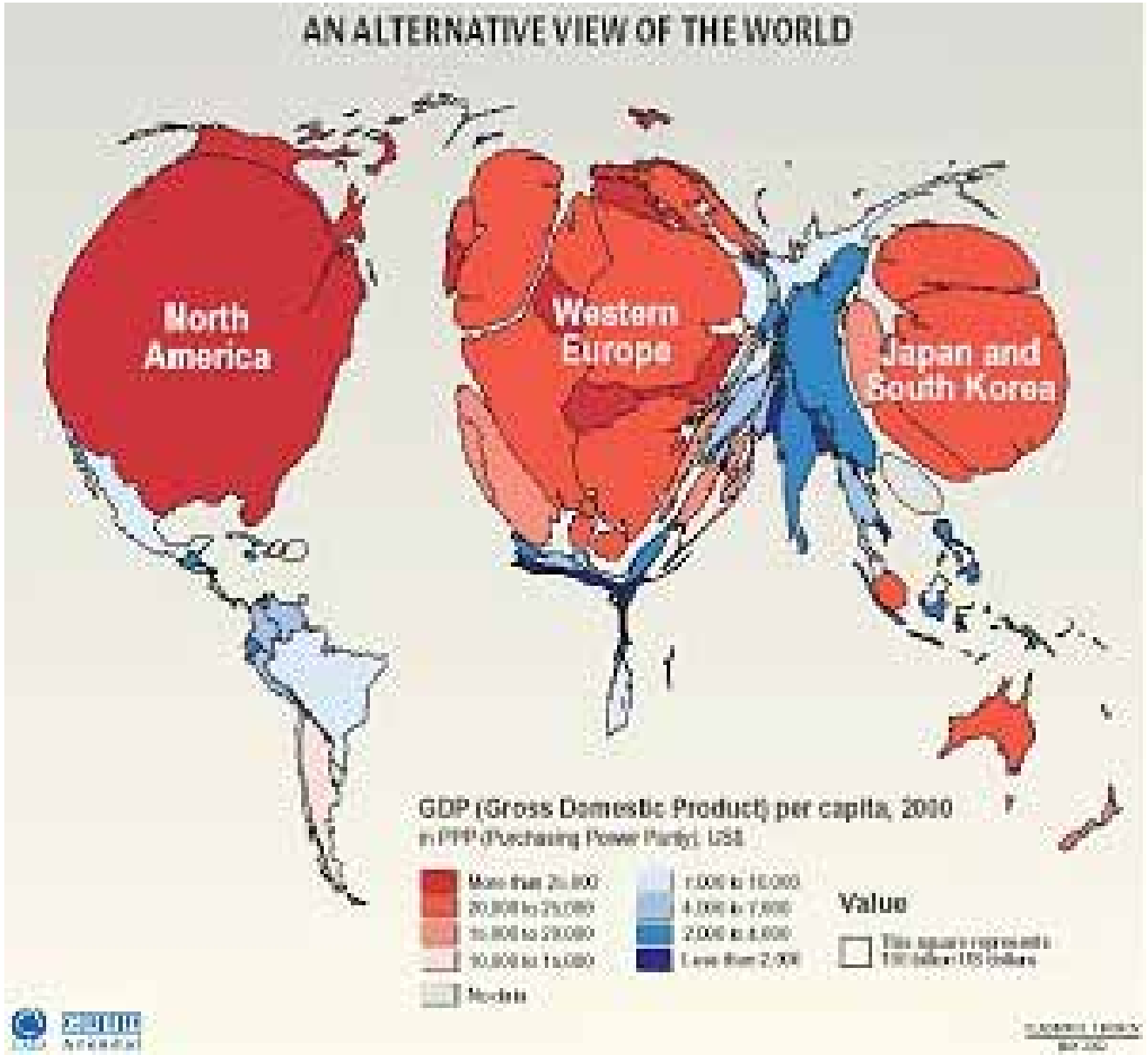
# Please Dim the Lights to View a Video

# US Population Growth

| Year | Population |
|---|---|
| 1900 | 76M |
| 1950 | 152M |
| 1990 | 250M |
| 2004 | 293M |
| 2020 | 357M |
| 2050 | 518M |

US Census Bureau
Statistics and projections

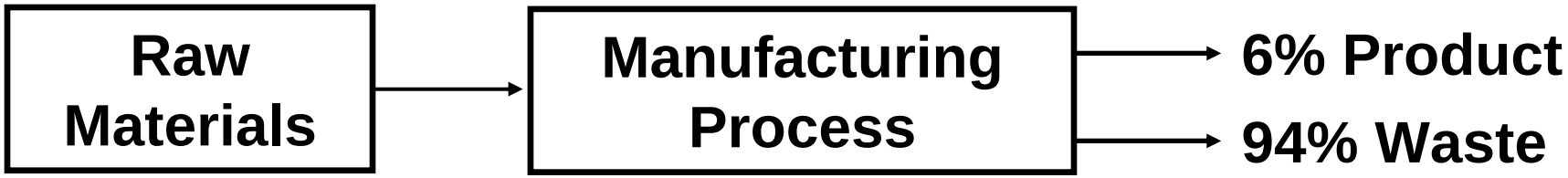
- Four-fold increase 1900-2004
- Seven-fold increase 1900-2050
- North Americans use twice as many resources as the average European; 7 times as many as the average person




- **The GDP of the poorest 48 nations is *less than* the wealth of the world's three richest people combined.**
- **Today, 97 out of every 100 babies are born in developing countries.**
- **Nearly 3 billion people live on less than $2 a day.**

# Inefficient Technology

**Linear Industrial Processes**
**Waste is created faster than it can be reconstituted to quality resources.**
**Take-make-waste**




- **80% of products are discarded after single use.**
- **99% of original materials made in the US become waste within 6 weeks of sale.**
- **One million pounds of waste/person/year**

# Life Cycle of a Coke Can

Step 1 - bauxite is mined in Australia

Step 2 - bauxite is trucked to plant for chemical processing 1 ton ore yields up to 1/2 of Aluminum Oxide

Step 3 - shipped to Norway for processing

Step 4 - oxide sits at smelter site for up to 2 months

Step 5 - 2-hour smelting reduces 1/2 of oxide into 1/4 ton of metal

Step 6 - metal ingot cured and shipped to Germany to be rolled

Step 7 - ingot is heated to 900°F and rolled into coil

Step 8 - coil is stored and cold rolled into sheet

Step 9 - sheet metal is shipped to England punched and formed into cans

Step 10 - can is washed, dried, primed and painted

Step 11 - can is lacquered and coated inside

Step 12 - cans are palletized, stored, and shipped

Step 14 - bottler cleans and fills with product

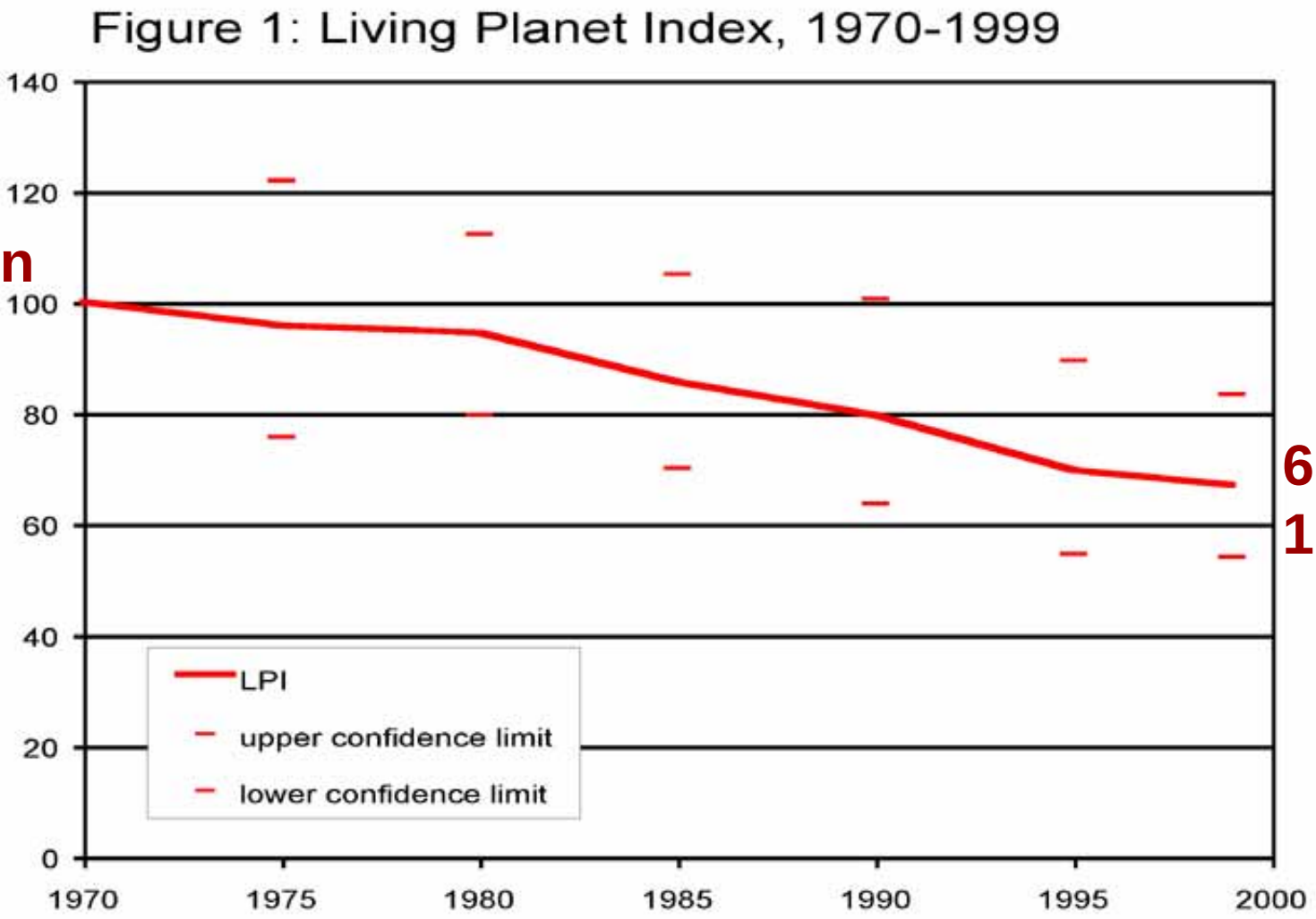
Step 15 - cans are packed in promotional boxes palletized and shipped to retailer

Step 16 - Can is purchased, contents consumed within a few minutes and is thrown away

# Falling Supply

- **Supply of life-supporting resources is declining in both quantity and quality**
- **Ecosystems are losing their capability to regenerate**
- **It's complicated and open to debate – but most scientists world-wide agree that the earth is under severe stress**

# Living Planet Index




**100% in 1970**

**65% in 1999**

# Ecological Footprint

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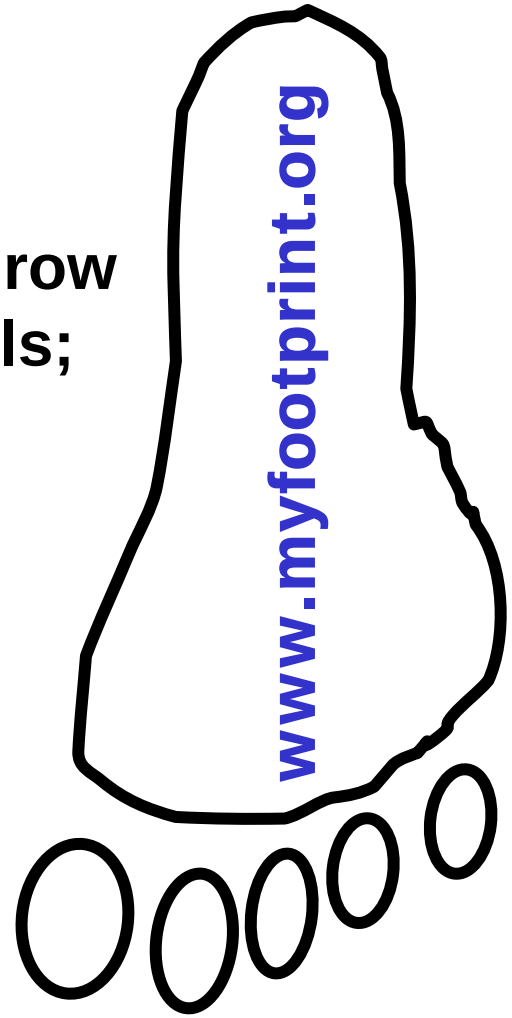
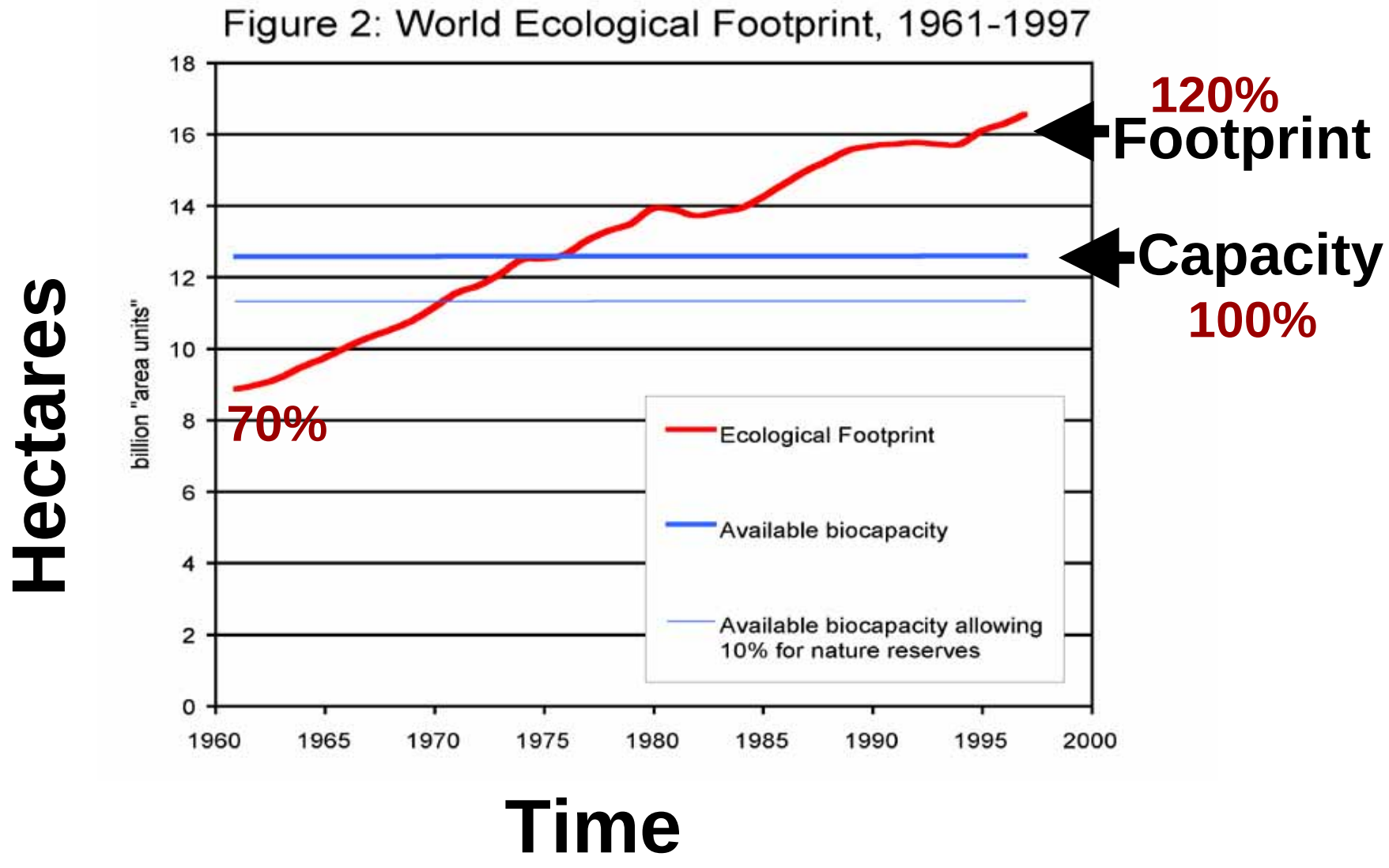
- **The Ecological Footprint measures consumption of natural resources by calculating how much land it takes to grow crops, animals, timber, fish; supply fuels; and hold infrastructure**
- **Average Ecological Footprints:**
  - ✓ **4.7 acres/person available**
  - ✓ **3.5 acres used by Africans and Asians**
  - ✓ **12.4 acres used by Western Europeans**
  - ✓ **24 acres used by average North American**
  - ✓ **29 acres used by me = 6.6 earths**



# World Ecological Footprint



# *A closed system*

***We're at zero balance on earths – we only have one, no spares.***

***MG Larry Lust***
***HQDA***

# It all comes down to money…

- **"Resource" is a topic that embodies both economic and physical attributes**
- **We are NOT going to run out of the physical resource - *Did a shortage of stones end the stone age?***
- **We ARE going to run out of willingness to pay (in $, frustration, and consequences) for some resources and in some locations**
- **So, at $10 billion dollars or 1 million cases of cancer or 1 million refugees per pound or per barrel or per bushel, we have an infinite supply . . . *What are you willing to pay?***

# Economists' view

# Ecosystem services

- **$36 trillion is the estimated worldwide value of ecosystem services such as flood control, water cleansing, air purifying, nutrient recycling etc (1997 dollars)**
- **$39 trillion was the Gross World Product in 1997 – the sum of all economic activity**
- **Already beyond the theoretical**
  - ✓ **New York City water system – pays annual fees to upstream landowners for the value of ecosystem services provided by undeveloped land**

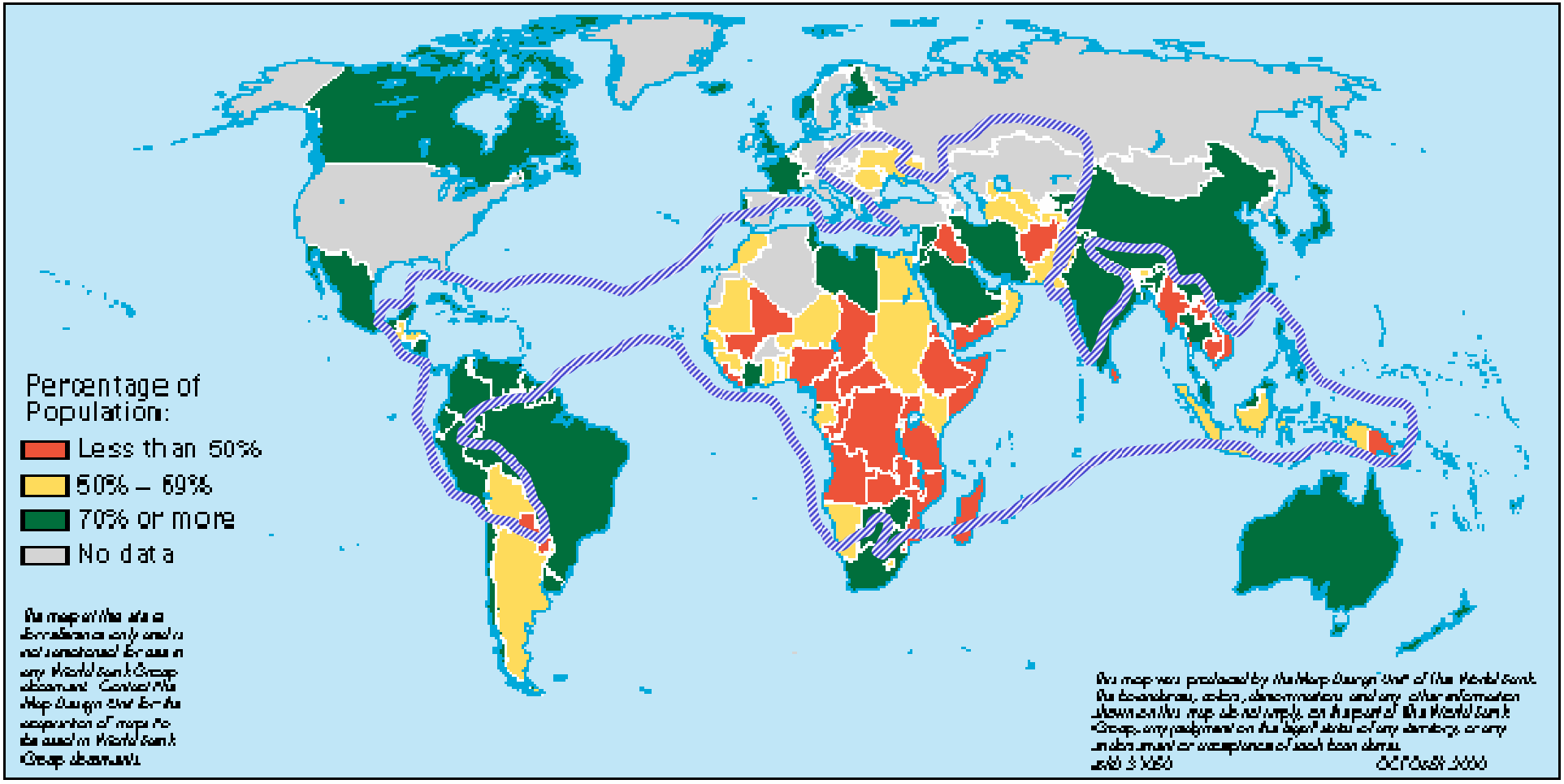
# Effects on the Army

- **Current and future missions**
- **Military training**

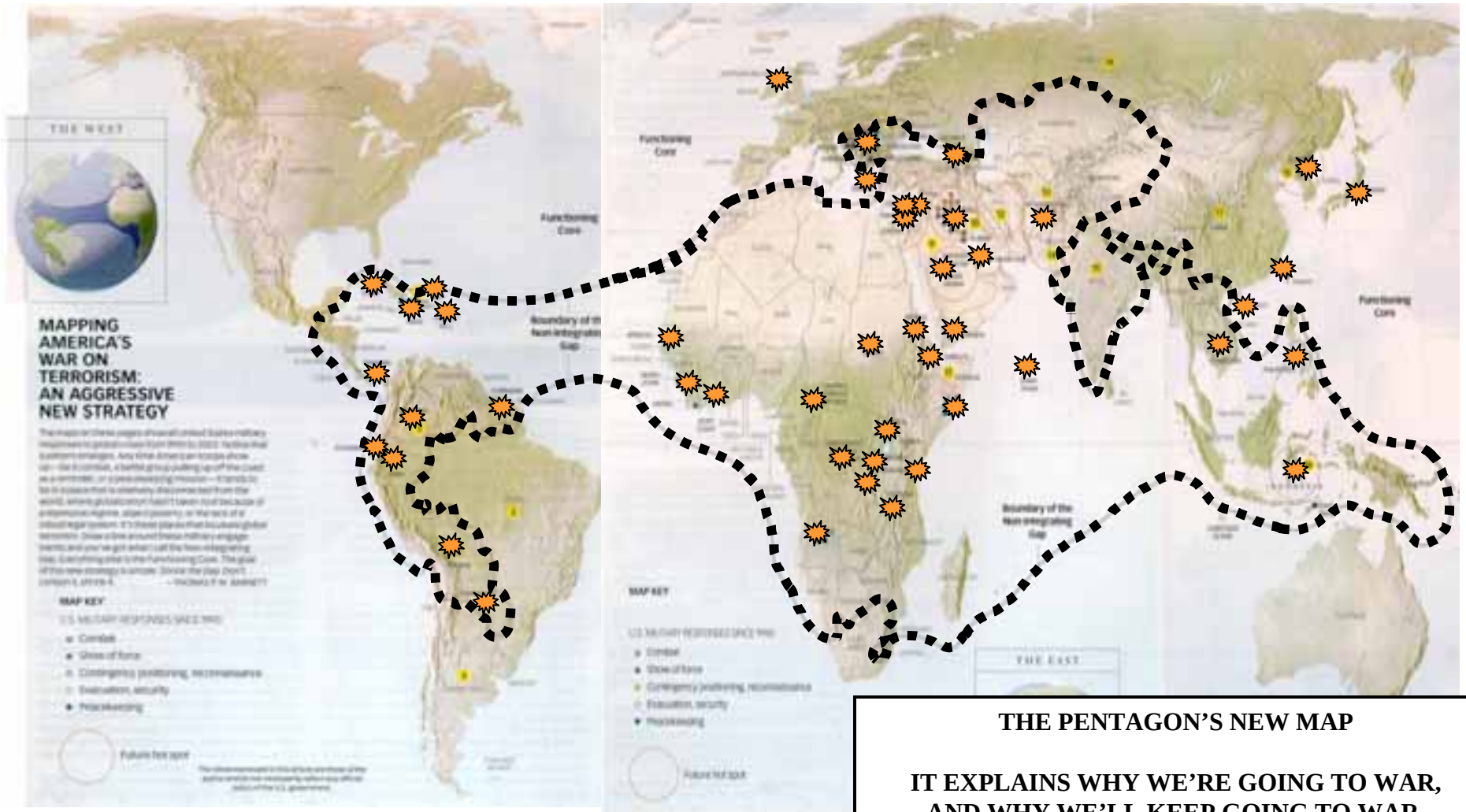
# *Limited supply also causes…*

- *competition for resources*
- *instability and conflict*

# Access to Safe Water, 1990-96



# Resource scarcity contributes to instability




US military deployments 1990 - 2003

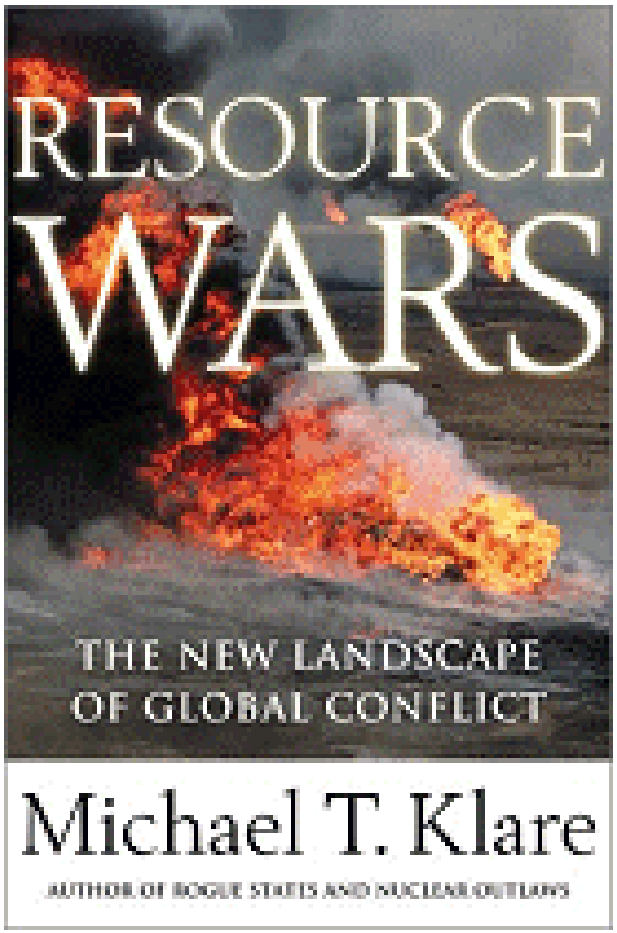
The "gap" countries – plagued by poverty

**THE PENTAGON'S NEW MAP**

**IT EXPLAINS WHY WE'RE GOING TO WAR, AND WHY WE'LL KEEP GOING TO WAR.**

**BY**
**THOMAS P.M. BARNETT, U.S. NAVAL WAR COLLEGE**
**[MAPS BY WILLIAM MCNULTY]**

**Printed in Esquire, March 2003**

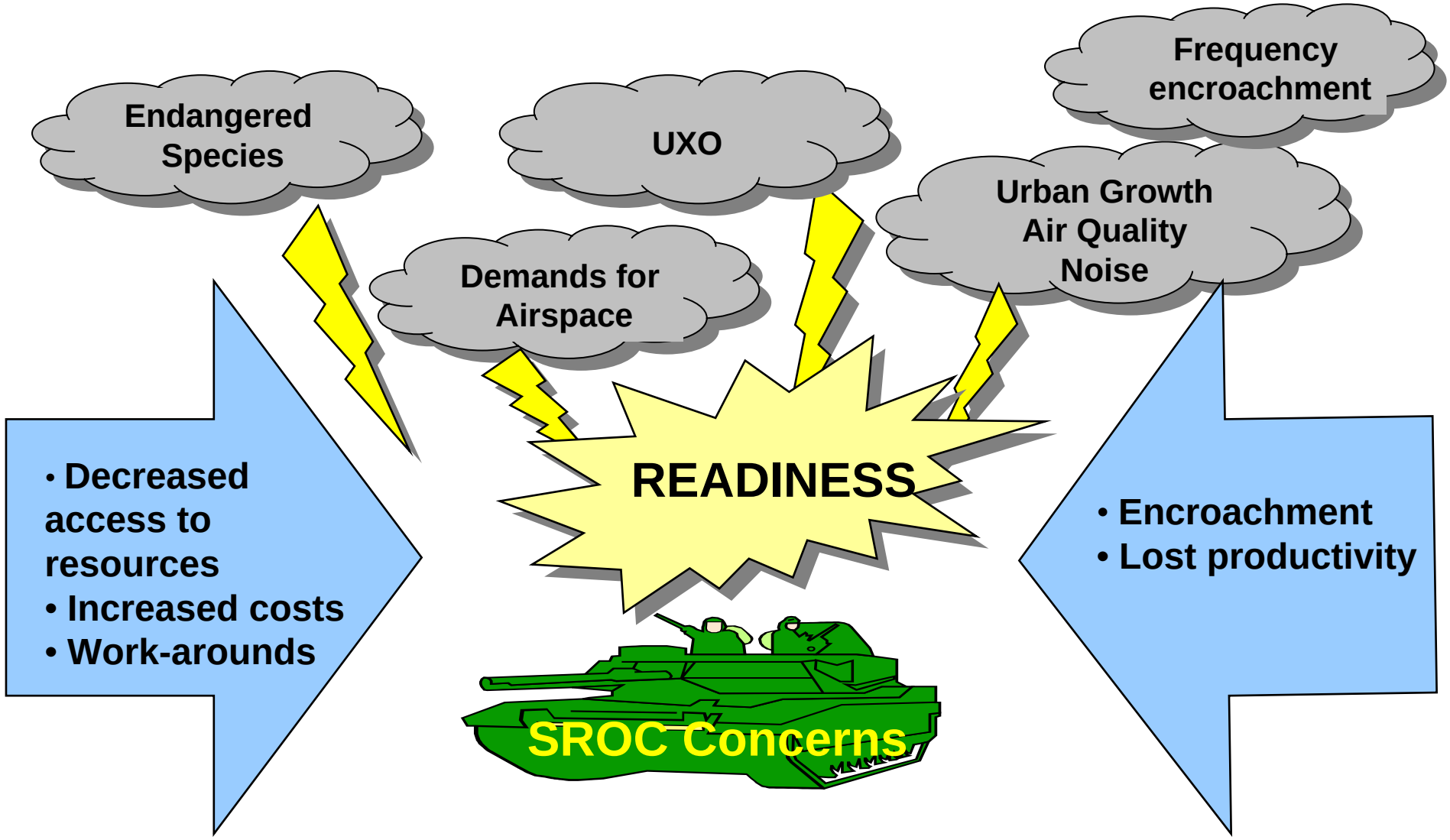



- **Klare analyzes the most likely cause of war in this century: demand by rapidly growing populations for scarce resources.**
- **Military strategic planners very aware of associated security concerns**

# Alternative Futures

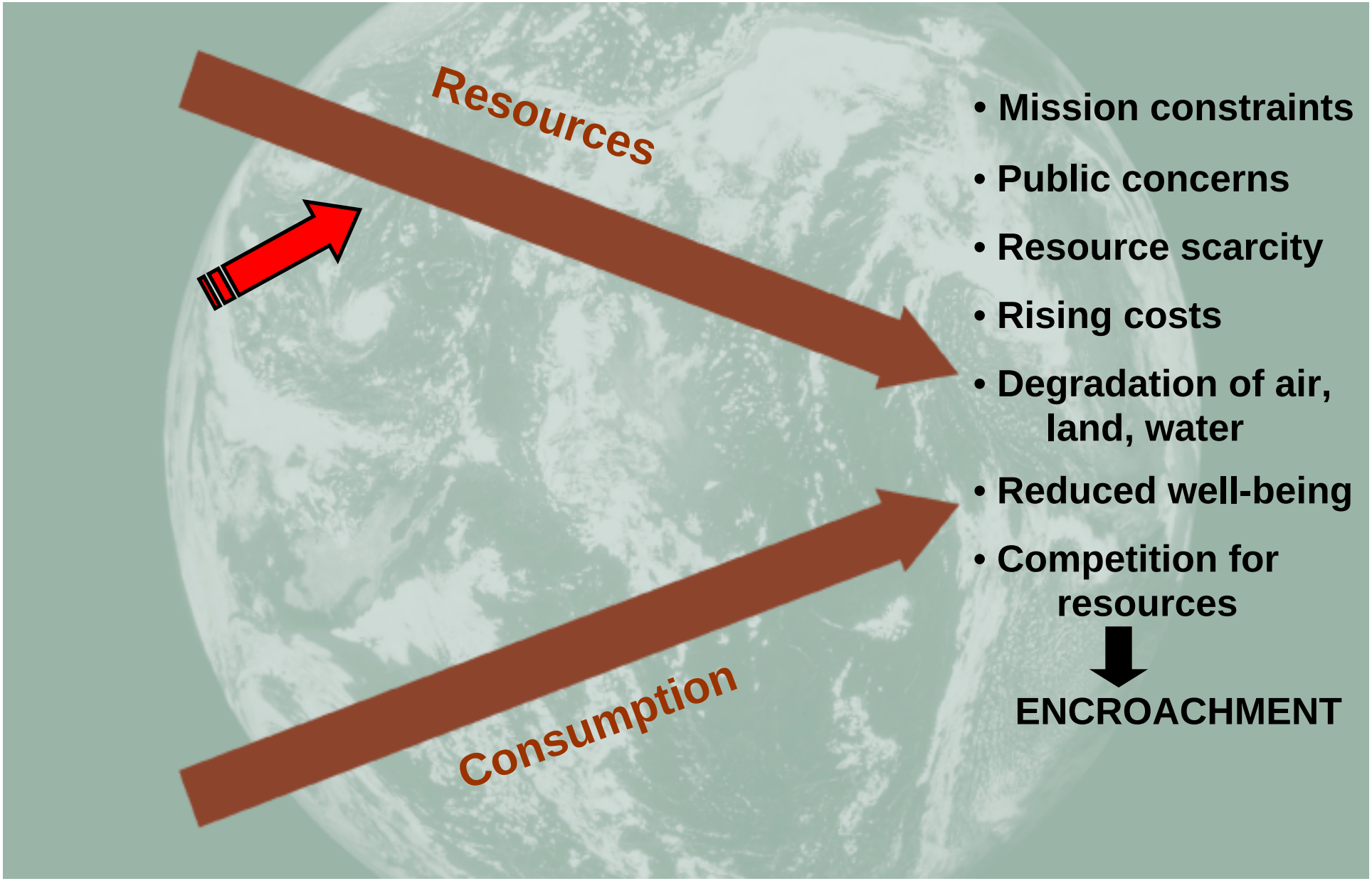

- Conventional World
- Fortress World
- Great Transitions

# Challenges to the Military Mission




Source: SECDEF Senior Readiness Oversight Council Report to Congress 2001

# Installation Challenges



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# Worst case – lost capability

- Massachusetts Military Reservation
- Vieques
- Makua Training Range
- Fort Bragg - RCW

# Diminished capability

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**Fort Bragg, faces the following issues that may impact its mission:**

- **A 125,000 acre training land shortfall – and a community growing up to the fenceline**
- **Air quality failing to meet federal standards -> potential constraints on smoke/obscurant use, construction, and transportation**
- **Annual water demand of over 3 billion gallons – and the upstream demand for water growing exponentially**
- **Skyrocketing resource costs: $30M/year for energy alone**

**Incompatible development near Fort Bragg's Ste. Mere Eglise drop zone**

# Leadership Concern

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- **Congressional testimony**
  - ✓**impact of environment on readiness**
- **Legislative Relief**
  - ✓**Readiness and Range Preservation Initiative**
- **State Encroachment Legislation**
  - ✓**Florida and Georgia**

# Range & Readiness Preservation Initiative (RRPI)

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- **Approved legislative requests:**
  - ✓ Integrated Natural Resource Plans can be used to manage endangered species instead of Critical Habitat designation
  - ✓ Approval to enter into land-use agreements such as conservation easements and create wetlands banks off-post
  - ✓ Clarified "harassment" and "intentional take" of migratory birds and marine mammals during military training
- **Pending legislative requests:**
  - ✓ Not treating UXO as regulated "waste" on operational ranges
  - ✓ Allow three years for new operations to conform with State Implementation Plans under the Clean Air Act

# “We will be a sustainable Army…”

**…one that simultaneously meets mission requirements worldwide, protects human health and safety, enhances quality of life, and safeguards the natural environment.**

**This is a long-term commitment, to radically change the way we design, build, buy, transport, and otherwise perform our mission, as we transform our weapons systems, tactics, and installations over the coming decades.**

**Mr. Ray Fatz**

**Deputy Assistant Secretary of the Army**

**April 2004**

# Business definition of sustainability


- **Businesses face the same constraints installations do**
- **Business leaders are aware that survival is not just about short-term profit, but long-term management of three capital accounts:**
  - ✓ **Financial**
  - ✓ **Human**
  - ✓ **Natural**
- **The "triple bottom line"**
  - ✓ **Profit**
  - ✓ **People**
  - ✓ **Planet**

# Sustainable installations…

- Optimize military training/mission
- Provide a high quality of life for soldiers, families, civilians
- Have a mutually-beneficial relationship with the local community
- Are cost-effective to operate throughout life-cycle
- Sustain natural resources for today and tomorrow

**SURVIVAL**

**Human Capital**

**Financial Capital**

**Natural Capital**

# For the Soldier

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# Today and Tomorrow

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# What do you think?